

ABSTRACT OF THE DISCLOSURE

An apparatus and method for modulating a phase of optical beam in an electrically isolated active region of an optical waveguide. In one embodiment, an apparatus according to embodiments of the present invention includes an active region of an optical waveguide disposed in a semiconductor layer. The active region includes a p doped region and an n doped region. The apparatus further includes an insulating region disposed in the semiconductor layer surrounding the active region in the semiconductor layer. The insulating region electrically isolates the active region of the optical waveguide from a passive region of the optical waveguide disposed in the semiconductor layer. An optical beam is to be directed through the optical waveguide and through the active region to be phase shifted in response to a modulated charge region in the active region in the optical waveguide.